

**REMARKS**

Claims 1, 7 and 9-64 are canceled herein and claims 2-6 and 9-10 were previously canceled. New claims 65 and 66 directed to a seal device and a linear motion device, respectively, are added herein. Support is found for example, at page 9, lines 15-20 and page 10 line 23 to page 11, line 1. No new matter is presented.

Accordingly, upon entry of the Amendment claims 8 and 65 and 66 will be all of the claims pending in the application.

**I. Response to Claim Rejections Under 35 U.S.C. § 112**

Claims 1 and 7-64 are rejected under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph, as allegedly being indefinite.

Claims 1, 7 and 9-64 are canceled herein, thereby rendering the rejection as to these claims moot.

Claim 8 is amended herein to delete the phrase "in terms of acid equivalent weight", thereby obviating the rejection as to this claim.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**II. Response to Claim Rejections Under 35 U.S.C. § 103**

Claims 1, 7-12, 29-40 and 57-64 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamamoto et al (U.S. Patent No. 6,187,864) or Rau et al (U.S. Patent No. 5,250,627) in view of Mori et al (U.S. Patent No. 5,861,212).

Claims 18-28 and 46-56 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamamoto et al or Rau et al as applied to claims 1, 7-12, 29-40 and 57-64

above, and further in view of Ryoke et al (U.S. Patent No. 5,904,908) and further in view of Mori et al.

Claims 13-17 and 41-45 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamamoto et al or Rau et al as applied to claims 1, 7-12, 29-40 and 57-64 above, and further in view of Sasaki et al (U.S. Patent No. 4,661,563) and further in view of Mori et al.

Claims 1, 7 and 9-64 are canceled herein, thereby rendering the rejection as to these claims moot.

Applicants respectfully submit that the cited references, whether taken alone or in combination, do not teach or suggest the presently claimed invention as recited in present claim 8 and claims 65 and 66 dependent thereon.

Claim 8 recites a rubber material composition comprising carboxylated acrylonitrile-butadiene rubber; and 10 to 60 wt parts of polyolefin based resin for 100 wt parts of said carboxylated acrylonitrile-butadiene rubber, wherein the polyolefin based resin is selected from the group consisting of carboxylic modified polyethylene and carboxylic modified polypropylene; and wherein the carboxylated acrylonitrile-butadiene rubber comprises a carboxyl group in an amount of  $2 \times 10^{-3}$  to  $5 \times 10^{-2}$  ephr.

Yamaoto (USP 5,250,627) discloses a rubber composition comprised of (A) an ethylene copolymer (acrylic) rubber comprising ethylene as a constituting unit and at least one compound selected from the group consisting of acrylic esters and methacrylic esters, and (B) a hydrogenated unsaturated nitrile-conjugated diene copolymer rubber. The rubber composition can also be comprised of (A) a compound selected from the group consisting of acrylic ester and methacrylic ester, (B) an ethylene copolymer (acrylic) including ethylene and a cross-

linkable third compound as a constituting unit, and (C) a hydrogenated unsaturated nitrile-conjugated diene copolymer rubber.

The rubber composition of Yamamoto utilizes an ethylene copolymer (acrylic) rubber as a base, and is a different composition from the present application, which utilizes a carboxyl group-containing unsaturated nitrile rubber. Yamamoto does disclose a carboxyl group containing monomeric unit as an example of the aforementioned third component. However, this is merely an acrylic rubber with a carboxyl group attached to a portion of the structure, and is different from the carboxyl group-containing unsaturated nitrile rubber of the present application.

Yamamoto does not disclose the modified polyolefin based resin that is added to increase the wear resistance.

Rau (USP 6,187,867) discloses a rubber composition wherein a hydrogenated nitrile rubber and a thermoplastic olefin are cross-linked. The base rubber of Rau is comprised of hydrogenated nitrile rubber, and does not include the carboxyl group-containing unsaturated nitrile rubber that is used in the present application.

Rau does disclose an unsaturated carboxylic acid such as an acrylic acid as one example of the unsaturated monomer that can be included in the hydrogenated nitrile rubber. However, the embodiments only utilize an ordinary hydrogenated nitrile rubber (HNBR). Even if the unsaturated carboxylic acid is included, this would form a carboxyl group-containing hydrogenated nitrile rubber, which is fundamentally different from the base rubber of the present application.

In addition, the polyolefin that is disclosed is only a polyethylene which does not include a carboxyl group.

Mori (USP 5,861,212) does not remedy the deficiencies of Yamamoto or Rau. Mori discloses an adhesive composition comprised of a latex of a carboxyl group-containing highly saturated nitrile rubber that is mixed with a resorcinol-formaldehyde resin and an aromatic epoxy resin. Mori also discloses a compound of a rubber and a fibrous material comprising a nitrile group-containing highly saturated copolymer rubber and a fibrous material that has been treated with the adhesive composition.

As disclosed in paragraph [0009] of Mori, the carboxyl group-containing highly saturated nitrile rubber that forms the base is like the double bond portion of the carboxyl group-containing unsaturated nitrile rubber, which is used in the present application, has been hydrogenated. Thus, strictly speaking, the carboxyl group-containing highly saturated nitrile rubber is different from that of the present invention.

Additionally, Mori fails to disclose the modified polyolefin-based resin that is added to increase the wear resistance.

In view of the above, there is no motivation to combine Yamamoto or Rau with Mori with a reasonable expectation of success. Even if combined the present invention would not have been achieved since none of the cited references teaches or suggest a carboxylated modified nitrile rubber, i.e., carboxylated acrylonitrile-butadiene rubber, or the carboxylic modified polyolefin-based resin that is added to increase wear resistance as in present claim 8. Even further, the references do not teach, suggest or recognize the advantageous effects of the present invention as shown in Examples 1, 2 and 3 of Table 12 in the present specification at

page 74. Specifically, from this data it can be seen that Examples 2 and 3 which utilize this configuration have less wear amount than Example 1 which utilizes an unmodified polyethylene. Thus, the present invention is not rendered obvious in view of the cited references.


Accordingly, Applicants respectfully request withdrawal of the §103 rejections.

### **III. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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**23373**

CUSTOMER NUMBER

Date: July 24, 2006